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PATENT APPLICATION  
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Shoe Cartridge Cushioning System

Cross-Reference to Related Application

is a continuation of application 10/099859, now Patent 6,722,058, which

[0001] This application incorporates by reference, and claims priority to and the benefit of,

German patent application serial number 10112821.5, titled "Shoe Sole," which was filed on

March 16, 2001.

Technical Field

[0002] The present invention relates to a cushioning system for a shoe using foam components having different shapes and densities.

Background

[0003] When shoes, in particular sports shoes, are manufactured, one objective is to restrict the movements of a wearer of the shoe as little as possible. On the other hand, the different loads that arise on the skeleton and the muscles during running should be moderated to reduce fatigue or the risk of injuries under long lasting loads. One cause of premature fatigue of the joints or the muscles is the misorientation of the foot during a step cycle. Typically, professional athletes run exclusively on their forefoot, in particular during track and field events; however, the average amateur athlete first contacts the ground with the heel and subsequently rolls-off using the ball of the foot.

[0004] Under a correct course of motion, most athletes perform a slight turning movement of the foot from the outside to the inside between the first ground contact with the heel and the pushing-off with the ball. Specifically, at ground contact, the athlete's center of mass is more on a lateral side of the foot, but shifts to a medial side during the course of the step cycle. This natural turning of the foot to the medial side is called pronation. Supination, i.e., the turning of